FIVE YEARS WORK IN SURGERY

HORACE PACKARD, M. D.

FIVE YEARS' WORK

. . . IN . . .

SURGERY.

Comments and Deductions Based upon a Series of Thirteen Hundred and Eighty-seven Operations.

BY

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INTRODUCTION.

IT is meet to pause now and then in the hurry and strife of work and turn back upon one's pathway. Even if it be strewn with failures, errors, lost opportunities, and unfinished enterprises, and in a measure be disheartening, it cannot other than retroact eventually by stimulating to better efforts and higher attainments.

In the routine practice of any calling in life where a restricted field is worked, there cannot be otherwise than unique individual personal experiences, more or less divergence from the beaten pathway, and the testing of new devices and methods, all of which may develop something heretofore unthought of and untried.

The following pages are presented to my colleagues for the purpose of placing upon record a summary of the author's work in surgery for the past five years, and to lay before them, for criticism and trial, various new methods, and modifications of old ones which it is hoped may prove of some value in the future.

Grateful acknowledgment is herewith expressed for laborious work in tabulating by Dr. Augustine C. Haub, and artistic work in making drawings for illustration by Dr. Alice E. Rowe.

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PLACES OF OPERATION.

Massachusetts Homœopathic Hospital	835
Private Residences	253
Newton Hospital	9
Westboro' Hospital for the Insane	6
Portsmouth, N. H., City Hospital	1
Rufus S. Frost General Hospital, Chelsea	2
Somerville Hospital	2
City Hospital of Quincy	1
"The Cedars," Roxbury	1
Office Operations of Minor Character	277

OPERATIONS.

January 1, 1891, to January 1, 1896.

	No. of Operations.	Cured.	Relieved.	Not Relieved.	Suppuration.	No Suppuration.	Convalescent.	Died.
1891	242	194	26	6	64	163	0	16
1892	245	203	22	7	50	182	0	13
1893	252	222	10	8	37	203	0	10
1894	291	262	6	13	39	242	0	10
1895	357	304	24	8	70	281	15	6
	1387	1185	88	42	260	1071	15	55

Mortality 3.96 %.

CASES.	OPERATIONS PERFORMED.	No. of Operations.	Cured.	Relieved.	Not Relieved.	Suppuration.	No Suppuration.	Convalescent.	Died.
Abscess abdominal	Injection with iodoform	1	1			1			
„ „	Laparotomy and drainage	3	2			2			
„ axillary	Opened and curetted	2		2		2			
„ back	„ „ „	1				1		1	
„ cervical	„ „ drainage	6	5			5			1
„ elbow	„ „ „	1	1			1			
„ face	„ „ „	2	2			2			
„ „	Extraction of tooth	1	1			1			
„ foot	Opened and curetted	1	1			1			
„ kidney	Nephrectomy	3		2		3		1	
„ „	Nephrotomy	1				1		1	
„ knee	Opened and drainage	1	1			1			
„ mastoid	Wilde's incision	1	1			1			
„ necrotic of costal cartilage	Evacuation and curetting	1	1			1			
„ palmar	„ „ „	2	1	1		2			
„ „	„ „ amputation second finger	1	1			1			
„ pelvic	Aspiration	1			1		1		
„ „	Vaginal exploration	1			1		1		
„ „	Abdominal section	2	1	1		2			
„ „	Opened and drained	8	7	1		8			
„ perineal	„ „ „	1	1			1			
„ peri-rectal	„ „ „	3	3			3			
„ peri-urethral	„ „ „	1	1			1			
„ pharyngeal	Evacuation	1	1			1			
„ prostatic	„ and drainage	2	2			2			
„ psoas	Aspiration	1			1		1		
„ „	Opened and drainage	3		2		2			1

Abscess testicle	Opened and drainage	2	2			2		
„ thigh	„ „ „	1	1			1		
„ tubercular of face	„ „ „	2	2			2		
„ „ „ groin	„ „ „	3	2	1		3		
„ „ meta carpal	„ „ „	1	1			1		
„ „ neck	„ „ „	5	5			5		
„ umbilical	„ „ „	1	1			1		
Adenoid vegetation	Removal	6	6				6	
Adenoma of cervix	High amputation	1	1				1	
Adhesion of cervix to vaginal wall	Freed by dissection	1	1				1	
Anchylosis right knee	Resection	1	1			1		
„ of jaw	„	1	1				1	
„ „ middle toe	Amputation	1	1				1	
Angioma of cheek	Removal	1	1				1	
„ „ eyelid	„	1	1				1	
Aneurism auricular artery	Ligation	2			2		2	
„ forearm	„ of brachial artery	1	1				1	
Appendicitis	Laparotomy	39	32			17	16	7
Ascites	Aspiration	1			1		1	
Atrophy of eye	Enucleation	1	1				1	
Biliary calculi	Cholecystotomy	11	8			6	2	3
Bubo	Opened and drainage	1	1				1	
Bursitis of knee	Aspiration	1	1				1	
„ „ patella	Extirpation	1	1				1	
Carbuncle	Thermo-cautery applied	1	1			1		
Caries left humerus	Amputation	1	1			1		
„ dorsal vertebræ	Plaster jacket applied	1					1	1
Cleft palate	Staphylorraphy	4	4				4	
Congenital absence of vagina	Exploratory incision	1			1		1	
Contraction of little finger	Tendon lengthened	1	1				1	
„ „ „ fingers	Dissection of palmar fascia	2	2				2	
„ „ three fingers of both hands	Skin grafting	2	2			2		
„ „ pelvis	Symphysiotomy	1	1				1	
„ „ toe	Amputation	1	1				1	

CASES.	OPERATIONS PERFORMED.	No. of Operations.	Cured.	Relieved.	Not Relieved.	Suppuration.	No Suppuration.	Convalescent.	Died.
Crushed fingers	Amputation ring and little fingers	1	1				1		
Cystitis	Exploration of bladder	3			3		3		
„	Perineal cystotomy	1		1			1		
Cystocele	Anterior colporrhaphy	23	23				23		
Deformity of face from cicatrization	Skin grafting	1		1		1			
Degenerated bursa of knee	Opened and curetted	1	1				1		
Deviation of nasal septum	Fracture and reposition	7	7				7		
Diphtheritic croup	Intubation	1	1				1		
Dislocation of cartilage of knee	Removed	2	2				2		
„ „ hip	Reduction	1	1				1		
„ „ humerus	„	1	1				1		
„ „ knee	Plaster bandage applied	1	1				1		
„ „ vertebra and other injury	Reduction	1	1				1		
Double uterus	Examination under ether	1			1		1		
Dysmenorrhœa	Dilatation	29	27	2			29		
Dysuria	„ of urethra	1		1			1		
Effusion in labia majora	Curetted	1		1		1			
„ over sacrum	Aspiration	1	1				1		
Elongated cervix	Amputation	3	3				3		
Empyema	Resection of ribs	7	6	1		7			
Endometritis	Curetting	77	74	2	1		77		
Enlarged prostate	Permanent drainage	4		2	2		4		
„ „	Prostectomy	1	1				1		
„ „	Perineal cystotomy	1							1
„ „	Castration	1		1			1		
Epithelioma of cervix	Curetting	1		1		1			
„ „ „	High amputation	2	2				2		

Epithelioma of cervix	Abdominal hysterectomy	1	1				1	
„ „ „	Vaginal hysterectomy	7	6				6	1
„ „ cheek	Excision	1	1				1	
„ „ clitoris	„	1	1				1	
„ „ face	„	3	2	1			3	
„ „ „	Skin grafting	2	2			2		
„ „ foreskin	Circumcision	1	1			1		
„ „ inguinal glands	Excision	1	1			1		
„ „ lip	„	3	3				3	
„ „ leg	„	1	1			1		
„ mammary	Amputation	1	1				1	
„ of nose	Excision	1	1				1	
„ „ penis	Curetting and cauterization	1	1			1		
„ „ rectum	Removal	2		1	1	2		
„ „ urethra	Excision	1		1		1		
Exostosis nasal septum	Removal	1	1				1	
Facial blemishes	Electrolysis	1	1				1	
Fissure in ano	Incised and curetted	7	7			1	6	
Fistula „ „	Opened „ „	27	26	1		27		
„ „ „	Skin grafting	1	1			1		
„ entero-vaginal	Closure	1			1	1		
„ vesico-enteric	Intestinal anastomosis	1						1
„ „ -vaginal	Closure	1	1			1		
Floating kidney	Nephrorrhaphy	5	4	1		2	3	
Foreign bodies:								
Fishbone in pharynx	Removal	1	1				1	
Needle imbedded in foot	„	1	1				1	
Gunshot wound of forehead	Bullet removed through frontal sinus	1	1				1	
Fractures:								
„ arm	Angular splint (Levis)	1	1				1	
„ clavicle	Reduction, Desault's bandage	3	3				3	
„ coccyx	Coccygectomy	2	2				2	
„ coracoid process	Reduction, Desault's bandage	1	1				1	
„ Colle's	„ Levis' splint	2	2				2	

CASES.	OPERATIONS PERFORMED.	No. of Operations.	Cured.	Relieved.	Not Relieved.	Suppuration.	No Suppuration.	Convalescent.	Died.
Fracture femur	Reduction, Levis' splint	2	1				1		1
„ „ and internal injury	„ „ „	1							1
„ „ compound	Ends sutured	1	1			1			
„ „ extra capsular	Reduction (Hodgen's suspension splint)	5	4				4		1
„ „ intra „	„ „ „ „	2	2				2		
„ fibula	„ Levis' splint	2	2				2		
„ „	„ Plaster bandage	1	1				1		
„ humerus	„ Levis' splint	3	3				3		
„ „ surgical neck	Resection of shoulder joint	1	1			1			
„ „ „ „	Reduction, Levis' splint	1	1				1		
„ „ un-united	Ends sutured	1	1				1		
„ inferior maxilla	„ „	1	1				1		
„ meta-carpal of little finger	Reduction, Levis' splint	1	1				1		
„ „ „ second finger	„ „ „	1	1				1		
„ patella	„ „ „	2	2				2		
„ radius	„ „ „	1	1				1		
„ skull	Trephining	1	1				1		
„ „ depressed	Fragments removed	1					1	1	
„ spine	Reduction (plaster jacket applied)	1					1	1	
„ tibia	„ Levis' splint	1	1				1		
„ ulna	„ „ „	1	1				1		
Ganglion of wrist	Removal	2	2				2		
Gangrene of great toe	Amputation	1	1				1		
Goitre	Injection with iodine	1			1		1		
„	Hemorrhage prevented removal	1			1		1		
Hæmatocele	Opened and drainage	3	2				3	1	
Hæmato-thorax	Aspiration	1		1			1		

Hæmaturia	Catheterization of ureters	1				1	1	
„	Supra-pubic cystotomy	1		1		1		
Hammer-toe	Amputation	1	1			1		
Harelip	Cheiloplasty	4	4			4		
Hemorrhoids	Removal (clamp and cautery)	42	42			42		
„	„ Whitehead's operation	16	16		8	8		
Hernia, femoral	Herniotomy	1	1			1		
„ „ strangulated	„	2	2		1	1		
„ inguinal	„	5	5		1	4		
„ „ double	Heaton's operation	2	1			1		
„ „ incarcerated	Herniotomy	2	2		1	1		
„ inguinal incarcerated	Reduction under ether	1		1		1		
„ scrotal	Herniotomy	1	1			1		
„ umbilical	„	3	3			3		
„ „ strangulated	„	1						1
Hydrocele	Enucleation of sac	4	4			4		
Hydro-thorax	Aspiration	2		1	1			1
Hypertrophy of tonsils	Tonsillectomy	12	12			12		
„ inf. turbinated	Removal	1	1			1		
Hypo-spadius, congenital	Frænum severed	1	1			1		
Impacted feces	Dilatation of rectum	1	1			1		
Imperforate hymen	Incised	2	2			2		
„ anus	Artificial anus constructed	1						1
Incised wound of face	Sutured	1	1			1		
„ „ „ „	Ligation of temporal artery	1	1			1		
„ „ „ forehead	Sutured	1	1			1		
„ „ „ leg	„	2	2			2		
„ „ „ wrist	„	1	1		1			
Injury of back	Curetting of sinuses	1	1		1			
„ „ finger	Removal of point of knuckle	1	1		1			
„ „ head	Trephining	1	1			1		
„ „ index finger	Spiculæ of bone removed	1	1			1		
„ „ knee joint	Exploration	1	1			1		
Intestinal obstruction	Lateral anastomosis, Senn's plate	1						1

CASES.	OPERATIONS PERFORMED.	No. of Operations.	Cured.	Relieved.	Not Relieved.	Suppuration.	No Suppuration.	Convalescent.	Died.
Intestinal obstruction	Lateral anastomosis	4	2			1	1		2
„ „	Inguinal colotomy	1		1			1		
„ stenosis	Lateral anastomosis	1	1				1		
„ stricture	„ „	1							1
Irritable coccyx	Coccygectomy	2	2				2		
Keloid of hand	Excision and skin-grafting	1	1			1			
Laceration of cervix	High amptutation	16	16				16		
„ „ „	Trachelorrhaphy	133	133				133		
Loss of vision	Enucleation of eye	1	1				1		
Lupus of face	Curetting	1		1		1			
„ „ „	Skin grafting	1		1		1			
„ „ leg	Curetting	1		1			1		
„ „ „	Skin grafting	1	1			1			
„ „ neck	„ „	1	1				1		
Luxation, sterno-clavicular	Reduction	1	1				1		
Mastoiditis	Trephining	1							1
Mole pregnancy	Curetting	1	1				1		
Morbus Coxarius	Extension applied	1					1	1	
„ „	Resection of head of femur	5		4		5		1	
„ „	Removal of sequestrum	2		2		2			
Nævus of upper lip	Excision	1	1				1		
„ „ forehead	„	1	1				1		
„ „ head	Ligation	1	1				1		
„ „ nose	Removal by electrolysis	1	1				1		
„ „ parietal region	„ „ „	3	2	1			3		
„ „ shoulder	„ „ „	1	1				1		
Necrosis inf. maxilla	„ of sequestrum	2	1	1		2			

Necrosis index finger	Removal of sequestrum	1	1			1		
„ metatarsal bone	„ „ „	2	2			2		
„ tarsus	„ „ necrosed bone	1		1		1		
„ tibia	Osteotomy	1		1		1		
„ femur	Removal of necrosed bone	2		1		2		1
Neuroma of stump	Excision	1	1				1	
Osteo-myelitis	Sequestrum removed	1	1			1		
„ „ following osteotomy	Sinuses opened	2	2			2		
„ „ of femur	Wyeth's operation	1	1			1		
„ sarcoma inf. maxilla	Resection of three eighths of lower jaw	1	1			1		
„ „ sup. „	„ „ sup. maxilla	1	1			1		
Phimosis	Circumcision	28	28				28	
Phlebitis	Removal	1	1			1		
Prolapsus of rectum	Amputation of prolapsus	1	1				1	
„ „ „	Cauterization	1		1			1	
„ „ urethra	Buttonhole operation	1	1				1	
Procidentia	High amputation	2	2				2	
„	Vaginal hysterectomy	1	1				1	
Punctured wound of zygoma	Excision of scar	1	1				1	
Rectocele	Post. Colporrhaphy	25	25				25	
Renal calculus	Nephro-lithotomy	1	1				1	
Retained placenta	Curetting	3	2				2	1
Retention of urine	Dilatation of urethra	1	1				1	
„ „ „	Perineal cystotomy	1	1			1		
Retro-flexion uteri	Exam. under ether and reposition	1		1			1	
Retro-version uteri	Alexander's operation	4	4				4	
„ „ „	Trans-peritoneal hysterorrhaphy	3	2		1		3	
Rigid hymen	Dilatation	1	1				1	
Ruptured perinæum	Perineorrhaphy	100	96		4		100	
„ „ complete	„	10	10			1	9	
Sacral sinus (Dermoid)	Curetting	2	2			2		
Sciatica	Nerve stretching	1			1		1	
Septic disease of shoulder	Curetting	3		3		3		
„ „ „ „	Amputation	1				1		1

CASES.	OPERATIONS PERFORMED.	No. of Operations.	Cured.	Relieved.	Not Relieved.	Suppuration.	No Suppuration.	Convalescent.	Died.
Septic hand	Curetting and drainage	2	2			2			
Sinus of cheek	„	1	1			1			
„ „ chest	Removal of sequestrum	1	1			1			
„ „ inf. maxilla	Curetting	1	1			1			
„ „ mons veneris	„	1	1			1			
„ „ rectum	„	1	1			1			
„ „ sacrum	„	2	2			2			
„ „ thigh	„	2	1	1		2			
„ „ wrist	„	1	1			1			
„ „ tarsus (tubercular)	Chopart's amputation	1	1				1		
Stenosis of cervix	Dilatation	5	5				5		
Stricture of rectum	„	3	1	2			3		
„ „ „	Incision	1		1		1			
„ „ „	Inguinal colotomy	1		1			1		
„ „ „	Excision of fibrous ring	1	1				1		
„ „ urethra	Dilatation	8	8				8		
Synovitis of tarsus	Aspiration	1		1			1		
Talipes equinus	Tenotomy	1		1			1		
„ varus	„	1	1				1		
Teratoma	Removal	1	1			1			
Tic douloureux	Neurectomy (fifth nerve)	3	2	1			3		
„ „	Removal of Gasserian ganglion	1	1				1		
Tertiary tooth	Extraction	1	1				1		
Tubal pregnancy	Electricity applied	1	1				1		
„ „	Laparotomy	2	1				1		1
Torticollis	Neurectomy (Spinal Accessory)	2		2			2		
Traumatic apoplexy	Trephining	1							1

Tubercular peritonitis	Laparotomy	2		1		1			1
Tuberculosis of ankle	Curetting	1			1	1			
„ „ „	Amputation lower third of leg	3	3			2	1		
„ „ cervical glands	Excision	7	7			5	2		
„ „ „ „	Ligation of vertebral artery	1							1
„ „ epididymis	Castration	1	1				1		
„ „ inguinal glands	Removal	1	1			1			
„ „ knee joint	Resection	1	1			1			
„ „ testicle	Removal	1	1				1		
Tumors:									
Abdominal	Exploration only	1			1		1		
Adenoma, mammary	Amputation	2	2				2		
Blepharal	Removal	1	1				1		
Carcinoma of abdominal viscera	Exploratory incision	5			4	1	4	1	
„ „ axilla, glandular	Extirpation	1	1				1		
„ „ bladder	Curetting	1		1			1		
„ „ cervical glands	Removal	2	1		1	1	1		
„ „ inguinal „	„	2	2			2			
„ „ „ „ secondary	„	2		2		2			
„ „ mammary	Amputation	50	50			9	41		
„ „ „ secondary	Removal of growth and pectoral mus.	3		3			3		
„ „ „	Injection with erysipelas toxin	1			1		1		
„ „ „ both glands	Amputation	2	2				2		
„ „ mesentery	Exploratory incision	1			1		1		
„ „ ovarian	Ovariotomy	1							1
„ „ „	Exploratory incision	1			1		1		
„ „ rectum	Inguinal colotomy	1		1			1		
„ „ „	Extirpation	1		1		1			
„ „ uterus	Curetting	4		3	1		4		
„ „ „	Exam. under ether	2			2		2		
„ „ „ and adjoining viscera	Exploratory incision	2			1		1		1
„ „ „	Abdominal hysterectomy	3	1				1		2
„ „ „	Vaginal „	10	9			1	8		1
„ „ urethra	Extirpation	1		1			1		

CASES.	OPERATIONS PERFORMED.	No. of Operations.	Cured.	Relieved.	Not Relieved.	Suppuration.	No Suppuration.	Convalescent.	Died.
Carcinoma of vulva	Extirpation	1		1		1			
Congenital cervical	„	1							1
Cysts, of cord	Aspiration	1	1				1		
„ fatty of back	Extirpation	2	2				2		
„ „ „ anus	„	1	1				1		
„ „ „ neck	„	2	2			1	1		
„ „ „ thigh	„	4	3	1			4		
„ of forehead	„	1	1				1		
„ „ kidney	Removed	1	1			1			
„ mammary	Cyst wall enucleated	5	5			1	4		
„ „	Amputation	3	3				3		
„ ovarian, left	Abdominal ovariotomy	3	3				3		
„ „ right	„ „	2	2				2		
„ „ „	Cyst wall enucleated	1	1				1		
„ „	Aspiration	1		1			1		
„ „	Abdominal ovariotomy	43	38				38		5
„ „	Vaginal „	5	5				5		
„ „ dermoid	Laparotomy	3	3				3		
„ „ „	Vaginal ovariotomy	1	1				1		
„ round ligament	Cyst wall enucleated	1	1				1		
„ thyroid gland	„ „ „	1	1				1		
„ uterine (colloid)	Removal	1	1						
„ vulvo-vaginal	Cyst wall enucleated	3	3			2	1		
Fibroid, mammary	Amputation	1	1				1		
„ ovarian	Abdominal ovariotomy	2	2				2		
„ uterus	Curetting	2		2			2		
„ „	Exploratory incision	1			1		1		

Fibroid, uterus	Ovariotomy	3		3			3		
„ „	„ and removal of tumor	2	2				2		
„ „ with ovarian hæmatoma	„	1	1				1		
„ „	Abdominal hysterectomy	15	7			4	3		8
„ „ sub-mucous	Removal with spoon saw	9	9				9		
„ „ „ „	„ „ ecraseur	4	4				4		
„ „ „ serous	Abdominal hysterectomy	3	3				3		
Fungus of nates	Removal	1		1			1		
Hydro-salpinx	Vaginal ovariotomy	1	1				1		
Papilloma of back	Removal	1	1				1		
„ „ face	„	1	1				1		
„ „ root of nose	„	1	1				1		
Polypus, cervix	„	6	6				6		
„ nasal	„	12	12				12		
„ rectal	„	5	5				5		
„ uterine	„	12	12				12		
Pyo-salpinx	Ovariotomy	12	7			5	4	2	3
„ „	Vaginal ovariotomy	1	1				1		
Salpingitis	„ hysterectomy	1	1				1		
„	Ovariotomy	2	2				2		
Sarcoma of groin	Removed	1		1		1			
„ „ neck	„	8	8			2	6		
„ „ orbit	Exploration only	1			1		1		
„ „ ovary	Ovariotomy	1							1
„ „ mammary	Amputation	2	2				2		
„ „ skin	Removed	6	6				6		
„ „ shoulder	Amputation	1	1			1			
„ „ uterus	Vaginal hysterectomy	1	1				1		
„ „ vagina	Erased	1		1		1			
Sarcoma of vaginal vault	Extirpation	1		1			1		
Tumor of shin	„	1	1				1		
Ulcer of leg	Skin grafting	3	3			3			
„ „ rectum	Curetting	1	1				1		
„ „ „	„ and cauterization	1	1				1		

CASES.	OPERATIONS PERFORMED.	No. of Operations.	Cured.	Relieved.	Not Relieved.	Suppuration.	No Suppuration.	Convalescent.	Died.
Urethral caruncle	Removed	3	3				3		
„ stricture	Dilatation	2	2				2		
Vaginal atresia	„	1	1				1		
Vaginismus	Removal of Carunculæ Myrtiformes	1		1			1		
„	Dilatation	3	2	1			3		
Varicocele	Ligation and removal	5	5				5		
Vesical calculus	Exploration	1			1		1		
„ „	Litholapaxy	8	7				7		1
Wart of face	Excision	1	1				1		
Wen of back	Removal	1	1				1		
„ „ cheek	„	2	2				2		
„ „ eye	„	1	1				1		
„ „ face	„	2	2				2		
„ „ forehead	„	1	1				1		
„ „ knee	„	1	1				1		
„ „ neck	„	1	1				1		
„ „ scalp	„	9	9				9		
		1387	1184	89	42	260	1071	15	55

FIVE YEARS' WORK IN SURGERY.

SURGICAL ACCIDENTS AND FATALITIES.

Shortly after a recent operation, for a case of extremely menacing appendicitis, and while the patient was still in a critical condition, a medical friend of the family said, on learning of the occurrence, "Appendicitis? Oh, yes! Operations for this condition are of almost daily occurrence at the hospital. A trifling matter, patients come in the morning, have the appendix removed and go home in the afternoon." Again, at a recent medical meeting, an esteemed colleague, in the midst of a discussion on vaginal hysterectomy, declared that "The operation has become a matter of great simplicity and without danger."

To the surgeon who has conducted a series of cases safely through what we should class as capital operations, the inclination is very great to minimize the danger incident to such procedures, or even to exclude it altogether, in the zeal to induce patients to undergo a proposed operation. With operations of necessity the question of danger from the operation itself occupies a secondary position, for the reason that the malady itself is a menace to the patient's life. In operations of choice, on the other hand, the question of the amount of danger which the operation itself entails is the all-important one. Dangers and fatalities often occur which can in no wise be anticipated. So simple an operation as repair of a lacerated cervix has its mortality. I had operated upon more than one hundred cases, without threatening sequelæ, when an instance occurred where a patient apparently hovered between life and death for a week. After the lapse of several years another case occurred of the same character, with fatal result. Several years ago a case of complete rupture of the perineum, where I had made repair in the usual way, followed by most excellent progress for a week, suddenly developed apoplexy while still in bed, with a fatal sequel two or three days later. A case of osteosarcoma of the skull communicated so directly with enlarged cerebral sinuses, that uncontrollable and fatal hemorrhage caused collapse and death before the completion of the operation.

There are so many unknown quantities within the patient's own organism that one can never promise "there is no danger." To be sure, we have many means of judging of the ability of individual cases to safely withstand the vicissitudes of anæsthesia and surgical operation. We can know with a measurable degree of accuracy of the integrity of the heart, the kidneys, and the digestive organs. We

have no means, however, of judging of the patient's resistance to the various forms of microbic agencies which are liable to become factors after any surgical operation; neither can we judge of the absence or presence of normal coagulability of the blood. Hæmophilia has, without question, been the cause of many fatal cases of secondary hemorrhage.

The position, then, that no operation is devoid of danger, many having but little, others a great deal, is the only justifiable attitude. It at least frees the surgeon from the accusation, after accident or fatality has occurred, of misrepresentation.

ANÆSTHESIA.

There is scarcely a department of surgery which holds so important a place as the question of anæsthesia. Almost the first question which a patient asks is, "Can I safely take ether?" The public mind has become profoundly impressed with the dangers of anæsthesia; indeed this cannot be otherwise, for brief reports are constantly occurring, in the columns of the public press, of fatalities both in hospital and private practice. It is difficult to conjecture how many of these fatalities may be laid to incompetence or inexperience in administration. It is my belief, based on observation of a large number of cases, that this may more often be the cause than otherwise. A scientific understanding of anæsthesia and its phenomena may well constitute a specialty in itself. It is my firm conviction that the surgeon's own interests, as well as his obligation to his patient, emphatically demand that anæsthesia shall be conducted by an expert in whose hands the whole matter may with confidence be placed, and who will constantly be watchful and guarded to see and avert dangers which the novice would blindly plunge into. I was recently asked to state what my experience had shown to be the best method of resuscitating patients in collapse from too profound anæsthesia. My answer was, "Resuscitation in the hands of the careful anæsthetist is never called for. Never carry your patient to such profound anæsthesia that resuscitation must be resorted to."

In the five years of surgical work which I herewith present, I think I can truthfully say that I have not had a death from anæsthesia, nor even a collapse from that source. I have occasionally had symptoms of collapse, but it has invariably been from shock or loss of blood.

Among the anæsthetics my experience leads me more strongly to adhere to sulphuric ether than ever before. From all sources statistics continue to show that the total fatality under ether anæsthesia is from one tenth to one third that under chloroform. In a very careful tabulation made a short time after the report of the Hyderabad commission, of forty-three deaths, thirty-nine were from chloroform and four from ether.

If such a result of investigation were occasional only, we might

question its significance, but such comparisons are universal in the hands of all investigators and in all countries.

In a long series of carefully conducted observations of ether anæsthesia, some rather interesting facts have been developed. It appears that invariably and without exception, inhalation of the fumes of sulphuric ether abolishes memory very promptly, that is, within the first three or four minutes.

Reflex muscular contraction persists a much longer time, and in some cases is not abolished at all, through the effects of the ether vapor alone. If finally abolished, it appears to be through deprivation of oxygen, and the accumulation within the blood of carbonic acid gas, and the resultant condition which we know as cyanosis. This quickly brings the patient to the danger line.

Is a patient ever killed through the inhalation of ether vapor alone? It is my firm belief that a fatality has never occurred from such a source. Atmospheric air at 70° F. becomes saturated with ether vapor at the rate of about one minim of ether to the cubic inch of air. I believe that air so impregnated with ether may be inhaled almost indefinitely without resulting fatally, or producing any menacing symptoms whatever. Anæsthesia thus produced with etherated air is not always the ideal state for surgical operations. Memory is abolished, but reflex muscular contractions sometimes persist.

What is the course as ether anæsthesia is ordinarily conducted? With the ordinary cone or ether cap, memory is abolished in a few minutes. Muscular reflex action continues, the ether cap is deluged with ether, and held tightly over the patient's face. Fresh supply of atmospheric air is almost entirely cut off. Anything like adequate oxygenation of the blood ceases. Carbonic acid and effete matter accumulate in the blood, until the spinal centres which control reflex muscular activity are inhibited. What we term surgical anæsthesia then ensues. If this be carried a little farther through ignorance on the part of the anæsthetist, or through lack of careful watching, general cyanosis follows; respiration becomes impeded, finally ceases, and death results.

Is there any way of supplementing ether anæsthesia so that we may not need to suffocate our patients? I am led to believe that, in those cases where reflex muscular activity persists after memory is abolished, we have in morphine a most valuable adjunct. With a hypodermic syringe at hand in the beginning of ether anæsthesia, charged with one eighth or one sixth of a grain of morphine, we are prepared to meet and overcome the reflex excitability of the cord. After the first two or three minutes of inhalation of the ether vapor, memory is abolished, the patient will have no remembrance even of the puncture with hypodermic needle; the anæsthesia then goes on quietly with the consumption of the minimum of ether. This I must believe is a far better and safer method than to plunge blindly on, deluging the patient with ether, as is the customary practice.

OXYGEN AND CHLOROFORM.

This combination has been used during the past year in a considerable number of cases, but its merits have not seemed such as to warrant its adoption to the exclusion of ether. There have been individual cases where the oxygen has seemed to be a valuable adjunct; but the subsequent disturbances in the shape of nausea and vomiting have been more marked than under the system with etherated air. The use of pure oxygen after anæsthesia, to antagonize the nausea and vomiting, I have not yet had sufficient experience with to comment upon. I am led to doubt its efficacy, however, from the fact that, where I have used oxygen continuously throughout anæsthesia, there has been severe and annoying gastric disturbance afterward.

LOCAL ANÆSTHESIA.

In chloride of ethyl and cocaine we possess local anæsthetics of inestimable value. One in a measure supplements the other, hence conditions often occur calling for their combined use. A spray of the chloride of ethyl quickly anæsthetizes a small area of the integument, enabling the surgeon to make a small incision or a puncture painlessly. The cutaneous use of cocaine necessitates that it shall be injected beneath the skin. Patients shrink from the pain even of puncture of a hypodermic needle. Combined with the application of chloride of ethyl, cocaine anæsthesia is induced locally without any pain whatever. Many minor operations and even those of considerable severity may be advantageously conducted in this way. Abscesses and boils may be painlessly opened, circumcision performed, fingers, or even the whole hand or arm, amputated. Recent experience has shown that much weaker cocaine solutions may be employed with equal anæsthetic efficiency than has heretofore been practised. In particularly susceptible cases very distressing, menacing, and even fatal results have followed the use of a four per cent solution. A solution containing but one per cent produces equally satisfactory effects without danger to the patient.

ANTISEPSIS.

This seems too trite a subject to call for comment in a review like this, and yet there appears to be such a confusion of thought upon the subject that the writer may be pardoned for alluding to it. The time is passed to question the desirability of incorporating with every surgical operation the principles of antisepsis. There are different ways of interpretation of these principles, but all are agreed that the one object sought is the antagonism of micro-organisms, which according to the old régime were the chief causes of suppuration and putrefactive decomposition in surgical wounds.

We hear a great deal about asepsis, and the word, in nearly all text-

books and in nearly all discussions upon the subject, is associated with antisepsis, as, for instance, "the aseptic and antiseptic method." Even in the last edition of the American Text Book of Surgery a paragraph appears on p. 1100, entitled "Asepsis and Antisepsis," with an attempted description of each. It seems absurd and misleading to perpetuate such teaching. Antisepsis is a method of combating sepsis, and is attained through the careful and conscientious preparation of the patient, the surgeon himself, the operating room, instruments and dressings, whether through the use of the scrubbing brush, soap and water, chemical antiseptics, or heat. Asepsis is a condition and is the ideal one to follow a rightly organized and executed antiseptic method. The aseptic progress of a wound from the time of operation to complete healing is the best evidence of the efficiency of the antiseptic method which has been utilized. Antisepsis has practically abolished wound suppuration. It is a rare thing now in the writer's experience to have suppuration occur in the course of healing of freshly made wounds. It takes a long course of training, watchfulness, and vigilance to attain this perfection of technique. I believe that one of the most prolific sources of wound contamination is found in the surgeon's own hands; next to these are ligature materials.

Mammary tumor operations, to my mind, furnish the most crucial test of the surgeon's completeness of technique. In these cases it was not until I had learned to complete the operation without fingering the tissues, and had insisted that my assistant keep his fingers out, that I could count invariably on an aseptic progress of the wound. Occasional stitch hole suppuration occurs, as far as I can learn, in the experience of all surgeons. This seems to result from our inability to completely sterilize the skin preparatory to an operation. The hair follicles and sebaceous ducts are likely to be the lodging places of pyogenic germs which are not dislodged through any amount of scrubbing or chemical disinfection.

REFINEMENTS OF SURGERY.

Surgery is a fine art, and as emphatically so as painting or sculpture. It is an art as susceptible of a high degree of cultivation as any which exists. With the present perfection of instruments and methods, trained assistants and nurses, it is not difficult for any one possessing a moderate degree of mechanical ability, good theoretical knowledge, and knowledge gained through a moderate amount of observation, to follow out paths already well trodden, and to attain a measurable degree of success in surgery.

An inborn something, however, which we may call art, has entered into the personality of those who have attained greatness as surgeons. The great Sims was an artist. Henry J. Bigelow, at the time of his death, was the most widely known American surgical artist among the nations of the world.

Who can have witnessed the operations of Martin, of Berlin, without pronouncing him an artist in his special line of work? Those individuals who perhaps even with crude instruments accomplish what those with many and complicated apparatus with difficulty attain, have the divine spark of art within them.

What would be termed the refinements of surgery are hardly possible except within the walls of a well-organized hospital, or in the hands of a surgeon who devotes his whole attention to that specialty. Anæsthesia with the least possible discomfort to patient, celerity within reasonable degree in the performance of operations, trained helpers, simplicity and appropriateness in instruments, delicacy of suturing, especially in exposed parts of the body, to avoid scar disfigurement, are all desirable refinements of surgery possessed by nearly all operators.

INDIVIDUALITY IN METHODS AND INSTRUMENTS.

No other quality possessed by the surgeon has exerted such great influence in the science and art of surgery as individuality. The Bigelow method, the Sims posture, the Trendelenberg position, the Sayre jacket, the Thomas hip splint, and hundreds of other systems and methods and forms of apparatus now in common use, are indissolubly connected with the name and individuality of the originator.

SHOCK AND ITS MANAGEMENT.

(Intravenous infusion of salt solution.)

This undesirable condition, which is liable to be the sequel of any surgical operation, has been the subject of discussion since the beginning of surgery. It is an unknown quantity in each case. The individual idiosyncrasy is very great. A hip joint amputation in one patient is followed by such profound shock that fatality follows, while in another convalescence occurs without incident. Shock takes place usually from one of two causes, either loss of blood or a profound assault upon the organism through the sudden severance of a large part, as a leg or arm. I believe nothing in recent times has been discovered which so satisfactorily averts this undesirable complication as the intravenous infusion of salt solution. It is especially in shock following loss of blood that its value is manifest, but it also exerts a salutary influence after prolonged operations where there is extreme depression of the vitality even though but little blood has been lost. It is a measure so simple in its execution, and can be performed with such simple apparatus, that there is little excuse for not resorting to it when the patient's life is jeopardized by shock. Sterilized, filtered, or distilled water should be used, although I should not hesitate to use any pure spring water which had been thoroughly boiled and allowed to cool. A clean glass funnel, to

which is attached a couple of feet of rubber tubing, and at the end of that a glass canula — the tapered glass tube of a medicine dropper answers every purpose — constitutes the essential part of the apparatus. The median basilic vein at the flexure of the elbow is exposed by a short incision through the overlying integument, a catgut ligature applied to it well toward the distal extremity of the wound. A small longitudinal slit is then made in the wall of the vein, in which the tip of the glass canula is inserted, first being sure that the tube, canula, and funnel are full of the salt solution, and there are no air bubbles to be carried into the circulation. The salt solution is what is termed a normal saline solution, that is, it approximates the normal salinity of the blood. It is made by adding one dram of pure sodium chloride to the pint of water. The solution should be maintained as near as possible at 100° F. It cools a little in passing through the funnel, tube, and canula, and by the time it reaches the circulation will probably have dropped to approximately 98⅖° F. From one to three pints, according to the amount of blood which has been lost, may be run into the circulation.

The beneficial results are observed almost immediately. A pulse which is imperceptible at the wrist within three minutes takes on increased volume, and in six or eight minutes more becomes full and regular. I have within the past year resorted to this measure quite a large number of times, with so much satisfaction that I now make the apparatus necessary for its performance a part of the equipment for every operation of magnitude.

The following case, which has recently come under my observation, well illustrates the value of this adjuvant.

A case of ruptured tubal pregnancy at the ninth week was undergoing operation. The patient was exsanguinated before the abdominal incision was made. The peritoneal cavity was full of blood and clots. Just as the left broad ligament which bore the gestation sac was being ligated, the anæsthetist reported the patient in collapse. Absolutely no pulse could be detected at the wrist. Respiratory efforts still continued, but superficially and at rare intervals. The median basilic vein of the right arm was quickly opened, and in a few minutes a current of warm saline solution was flowing in and mingling with the blood current.

In three or four minutes more a faint pulse could be detected; at the expiration of ten minutes it was full and round; respiration had improved, and by the time that three pints had been infused, a slight pinkish color had returned to the cheeks. The patient's life was saved.

The operation was completed without further incident. There was no subsequent shock, and the patient has made an uneventful convalescence.

I have been recently much gratified to learn through an esteemed colleague who conducts the surgical work in a suburban hospital, and who had seen this expedient resorted to during an operation which

I was conducting, that he has resorted successfully to this method of resuscitation in a case of collapse from loss of blood following an accidental wound.

The patient lay upon the table apparently dead; no action of the heart could be detected. Bystanding colleagues protested that saline infusion would be useless, in view of the apparent fact that the patient's life had already come to an end. He persisted, however, in making the infusion with the result that in a few moments the heart began to pulsate feebly, but gradually gained in strength as the infused fluid increased, until the circulation was again well established. The patient recovered.

CASTRATION FOR PROSTATIC HYPERTROPHY.

This distressing malady has always been the bête noire of the advanced years of manhood. It is indeed a piteous spectacle to witness the prolonged sufferings and annoyance in a man of advanced years, who has led, perhaps, an exemplary life in every way, and at a time when he is able to put aside business cares, and enjoy the competency which has accrued from hard work and integrity in his business. His comfort and happiness are completely upset through this misfortune.

Until the possibility of relief of this trouble through castration was suggested, treatment was directed to extirpation of the prostate, or such portion of it as could be cut away.

Such operations, involving as they must either a supra pubic or perineal cystotomy, are poorly tolerated by the aged and usually weakened patient.

Castration has now been practised a sufficient number of times to warrant at least some deductions as to its efficacy. As is usual with a new and highly vaunted surgical procedure, many reports have undoubtedly been prematurely commendatory, and final results have not been commensurate with the hopes of the patient or surgeon.

Statistics show that a large percentage, over seventy-one per cent, are permanently benefited, also that the operation has a very small mortality, especially in those cases which are not too far advanced.

Two cases only have come under my personal observation. These were both of long duration, feeble and well advanced in years, 68 and 75.

One patient died within two weeks of the operation, but from causes apparently in no wise connected with it, for the wounds healed by first intention without a drop of pus. The other case lived almost five months, with positive relief from local symptoms. Death finally came from general exhaustion and senility.

TABULAR VIEW OF APPENDICITIS CASES.

No.	PATIENT OF	Date of operation.	Sex.	Age.	Duration of disease.	Pathological condition or symptoms necessitating operation.	NATURE OF OPERATION.	Drainage.	Hospital or private.	Result (recovery or death).	Effect of operation on symptoms requiring it	REMARKS	Reported Elsewhere.
1	Dr. S. Calderwood, Roxbury, Mass.	Feb. 12, '90.	M.	11 yrs.	1 wk.	Appendicitis.	Evacuating abscess cavity.	Yes.	H.	R.	Cure.		N. E. Medical Gazette, Aug., '91.
2	Dr. F. C. Richardson, E. Boston, Mass.	Mar. 12, '90.	M.		10 da.	"	Exploratory incision.	"	P.	D.		Calculus.	"
3	Dr. J. N. Knight, Chftondale, Mass.	Nov. 18, '90.	F.			"	Removal of vermiform appendix.	"	"	R.	Cure.		"
4	Dr. C. F. Osman, Dorchester, Mass.	Jan. 29, '91.	M.		10 da.	"	"	"	"	"	"	Calculus.	"
5	Dr. F. L. Newton, Somerville, Mass.	Feb. 23, '91.	M.	37	3 wks.	"	"	"	H.	"	"		"
6	Dr. Frank L. Newton, Somerville, Mass.	Feb. 26, '91.	M.		10 da.	"	"	"	P.	D.		Calculus.	"
7	Dr. Harriet H. Cobb, Cambridgeport, Mass.	Jan. 18, '92.	M.	11	7 da.	"	"	"	"	R.	Cure.	Rapid and uncomplicated recovery.	
8	Dr. L. M. Kimball, Boston, Mass.	Jan. 24, '92.	M.	39	2 wks.	"	"	"	"	"	"	Calculus size of garden bean. Rapid convalescence.	
9	Dr. S. H. Blodgett, Cambridge, Mass	Apr. 24, '92.	F.	8	13 da.	"	Evacuation of pus, and removal of sloughing appendix.	"	"	"	"	Slow but complete recovery.	
10	Dr. J. F. Hadley, Waltham, Mass.	June 25, '92.	M.	16	11 da.	"	Removal of vermiform appendix.	"	"	"	"	Convalescence rapid.	
11	Dr. F. A. Gardner, Salem, Mass.	Oct. 26, '92.	M.	32	9 da.	"	"	"	"	D.		Four calculi, uninterrupted convalescence for five days, with temp. and pulse normal, sudden collapse and death. Autopsy showed no cause. Supposed to be embolism.	
12	Dr. C. Wesselhoeft, Boston, Mass.	Jan. 2, '93.	M.	28	1 wk.	"	"	"	H.	"		General peritonitis which had existed previously proved fatal.	
13	Medical Student, B. U. S. M.	Jan. 20, '93.	M.	15	6 da.	"	"	"	"	R.	Cure.	Uncomplicated recovery.	
14	Dr. J. W. Hayward, Taunton, Mass.	Jan. 30, '93.	M.	14	6 da.	"	"	"	P.	"	"	"	
15	Dr. C. W. Scott, Lawrence, Mass.	April 5, '93.	F.	35	5 da.	"	"	"	"	D.		Death 33 hours after operation.	
16	Dr. J. W. Hayward, Taunton, Mass.	April 14, '93.	M.	18	5 wks.	"	"	No.	"	R.	Cure.	Slow but perfect convalescence.	
17	Dr. W. F. Wesselhoeft, Boston, Mass.	Dec. 20, '93.	M.	19		"	"	Yes.	H.	"	"	Uncomplicated convalescence.	
18	Dr. J. Chase, Jr., E. Weymouth, Mass.	Dec. 29, '93.	M.	19	6 da.	"	"	"	P.	D.		Death in 48 hours from septicæmia. No evidence of peritonitis following operation.	
19	Dr. M. P. Wheeler, Dorchester, Mass.	Jan. 7, '94.	M.	42		"	"	"	"	R.	Cure.	Excellent recovery. No rise of temperature before operation, but pus was found.	
20	Dr. G. D. Bliss, Dorchester, Mass.	Feb. 17, '94.	M.	47		"	"	"	"	"	"	Excellent convalescence.	
21	Dr. I. B. Cushing, Brookline, Mass.	Feb. 24, '94.	M.	14	17 da.	"	"	"	H.	"	"	"	
22	Dr. J. T. Harris, Roxbury, Mass.	Mar. 31, '94.	F.	49	19 da.	"	Evacuation of pus, and removal of sloughing appendix.	"	P.	"	"	Calculus size of bean. Excellent convalescence.	
23	Dr. C. Wesselhoeft, Boston, Mass.	April 1, '94.	M.	43	15 da.	"	Removal of vermiform appendix.	"	"	"	"	"	
24	Dr. R. E. Jameson, Jamaica Plain, Mass.	April 3, '94.	F.	35	22 da.	"	"	"	"	D.		General peritonitis rapidly supervened.	
25	Dr. S. H. Blodgett, Cambridge, Mass.	April 12, '94.	M.	20	14 da.	"	"	No.	"	R.	Cure.	Rapid recovery.	
26	Dr. F. L. Newton, Somerville, Mass.	April 18, '94.	M.	7		"	"	Yes.	"	"	"	"	
27	Dr. A. W. Logan, Woodstock, Vt.	May 11, '94.	M.	28	13 mos.	"	"	No.	"	"	"	Enormous calculus. Excellent recovery.	
28	Dr. C. Rogers-Rutter, Waltham, Mass.	Oct. 10, '94.	F.	21		"	"	"	H.	"		Death months later from abdominal tuberculosis.	
29	Dr. J. T. Harris, Roxbury, Mass.	Oct. 10, '94.	F.	17	5 da.	"	"	Yes.	P.	"	Cure.	Excellent recovery.	
30	Dr. F. L. Babcock, Dedham, Mass.	Oct. 31, '94.	M.	15	3 da.	"	"	"	"	"	"	Much general peritonitis. Large calculus. Appendix sloughing.	
31	Dr. N. M. Wood, Charlestown, Mass.	Nov. 7, '94.	F.	24	6 wks.	"	"	No.	H.	"	"	Uncomplicated recovery.	
32	Dr. G. W. Crane, Foxboro', Mass.	Dec. 10, '94.	M.	5	5 da.	"	Evacuation of pus, and removal of sloughing appendix.	Yes.	"	D.		Large calculus. Secondary rupture. Pus well disseminated through peritoneal cavity. Death 17 hours after operation.	
33	Dr. F. M. Bennitt, Chicopee Falls.	Jan. 24, '95.	M.	17		"	Evacuation of two oz. pus, and calculus removed.	"	P.	R.	Cure.	Large calculus. Appendix not found. Rapid convalescence.	
34	Dr. J. L. Coffin, W. Medford, Mass.	April 15, '95.	M.	32	18 da.	"	Removal of vermiform appendix.	"	"	"	"	Two calculi. Uninterrupted convalescence.	
35	Dr. F. B. Percy, Brookline, Mass.	June 6, '95.	M.	16	6 mos.	"	"	No.	"	"	"	Appendix constricted. Contained pus and a calculus.	
36	Dr. N. M. Wood, Charlestown, Mass.	June 6, '95.	M.	53	4 da.	"	"	Yes.	"	"	"	Calculus size of bean. Convalescence retarded by pleuro-pneumonia.	
37	Dr. W. O. Faxon, Stoughton, Mass.	Sept. 22, '95.	M.	28	2 da.	"	Evacuation of pus, and removal of sloughing appendix.	"	"	"	"	Small calculus. Uninterrupted recovery.	
38	Dr. N. M. Wood, Charlestown, Mass.	Oct. 17, '95.	M.	20	2 da.	"	Removal of vermiform appendix.	"	"	"	"	Appendix perforated. Excellent recovery.	
39	Dr. W. J. Winn, Cambridge, Mass.	Nov. 30, '95.	M.	22		"	"	No.	H.	"	"	Uncomplicated convalescence.	
40	Dr. E. A. Jones, Uxbridge, Mass.	Dec. 7, '95.	F.	38	5 mos.	"	"	"	P.	"	"	"	
41	Dr. C. W. Morse, Salem, Mass.	Dec. 25, '95.	F.	21	17 da.	"	"	Yes.	"	"	"	"	
42	Medical Student, B. U. S. M.	Dec. 28, '95.	F.	36		"	"	"	H.	"	"	"	

APPENDICITIS.

This disease, which has excited so much controversy and comment, both among the profession and laity, for the past few years, still constitutes one of the most important surgical conditions with which the surgeon has to deal. The question as to whether surgical interference in a given case is for the best interest of the patient is often extremely difficult to decide. In the observation and operative treatment of a large number of cases the following classification has suggested itself to me, based on the pathological conditions taking place.

This classification has seemed to me of great aid in determining the question of resorting to operation.

CLASSIFICATION OF APPENDICULAR INFLAMMATIONS.

Recurrent Appendicitis. — Exaggeration of normal secretion of appendicular mucous membrane. Mucous membrane raised in rugæ: outlet partially obstructed, drainage incomplete, periodical accumulation of mucus, liquid fæcal matter, and products of activity of colon bacillus. Spontaneous evacuation, relief of symptoms. Periodical recurrence. Seldom or never lapses into perforative appendicitis. No danger to life. Sometimes chronic state of invalidism is induced through frequently recurring attacks. Operation for the removal of appendix between attacks the only course which permanently cures.

Menacing Appendicitis. — Total occlusion of the appendix through constriction near its cæcal orifice, or the presence of a fæcal calculus which fills its whole lumen. Incarceration of colon bacilli, pus formation, ulceration of the mucous lining, finally perforation and escape of the infectious material into the peritoneal cavity. Agglutination of adjacent loops of intestines and the formation of a compartment of the peritoneal cavity into which the infectious matter is received and safely held, temporarily or permanently, without extension to the general peritoneal cavity. Possible spontaneous recovery through absorption of the purulent débris, or its escape per anum through perforation of an adjoining loop of intestine, or perforation of the abdominal wall and discharge externally. Death may occur through secondary rupture into the general peritoneal cavity, or absorption of the septic matter into the general system and general septicæmia. A bunch is always present, discernible in the right inguinal region, through palpation or percussion. Operation for the external evacuation of the pus at the earliest time that its presence can be demonstrated with the least possible disturbance to the other abdominal viscera, with or without the removal of the appendix itself, according to circumstances, offers the safest course for the patient.

Fatal Appendicitis. — Perforation occurs from similar causes mentioned above. No protective adhesions have occurred. The infective material meets with no obstacle to rapid extension throughout

the peritoneal cavity; the pain begins suddenly, violently, steadily augments, and, without remission of symptoms, fatality occurs the fourth or fifth day from general peritonitis. Nothing avails to save the life of the patient except operation within the first day or two. These are the cases where surgery preëminently should be invoked early for the removal of the perforated appendix, obliteration of its communication with the peritoneal cavity, thorough cleansing away of extravasated débris and adjustment of capillary gauze drainage for forty-eight hours. It is rare, however, that physician or patient is awakened to the gravity of the case until too late. If, however, the pathological conditions be borne in mind with the suddenness in onset of symptoms and their steady augmentation and violence without remission, it seems to the writer that the urgent demand for surgical interference in the interests of the patient cannot be overlooked.

The following table and the accompanying illustrations afford a somewhat comprehensive record of the author's experience in this disease during the past few years. A few of the most marked and interesting cases are herewith appended.

Perusal of the table shows a total of forty-two cases, with thirty-four recoveries and eight deaths. I have no question in my own mind but that every individual fatal case might have been saved had operation been performed earlier. Invariably, when death has occurred, it has either been from general septicæmia without peritonitis, or violent general peritoneal inflammation with extreme tympanites. The following are brief notes of the circumstances attending the fatalities: —

Case 6 was a boy of eight years; duration of attack ten days; general tympanites at the time of operation. A fæcal calculus was the cause of the attack, and was found in the abscess cavity. General septicæmia supervened.

Case 2. An adult was operated upon ten days after the beginning of the attack. General peritonitis was present; a calculus was evacuated, and drainage established. A continuation of the general peritonitis proved fatal.

Case 12. The patient, an adult, was first seen three days after the initial symptoms. He refused operation, which was postponed for a week. At the expiration of nine days operation was performed, four calculi removed with evacuation of pus. He survived five days under hopeful conditions, at the expiration of which time there was sudden collapse and death. There was undoubtedly, prior to operation in this case, absorption of septic material, with embolic infarction of the brain.

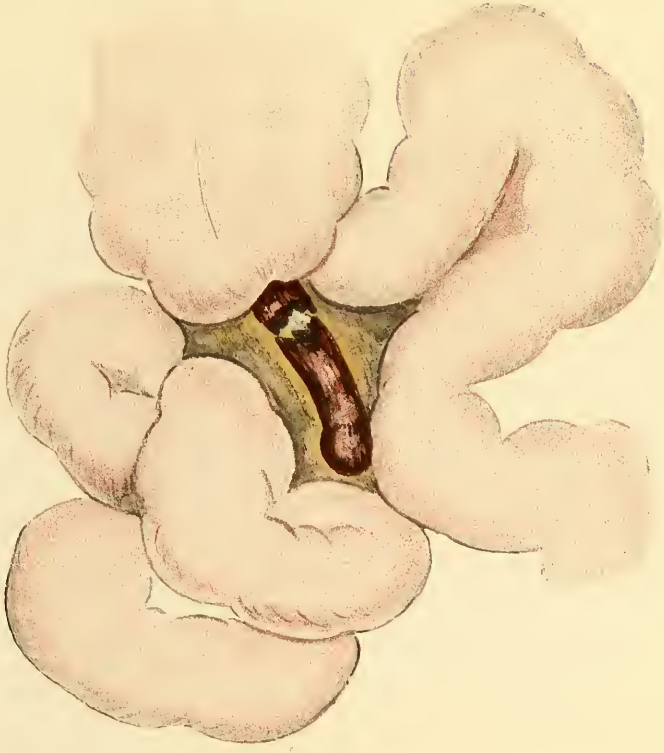
Case 13. Twenty-eight years of age. Had been ill one week. General tympanites existed, in fact, the patient was almost in collapse, and operation was performed as a last hope. Death occurred from a continuation of the peritoneal inflammation.

Case 16. A woman of thirty-five years; had been ill five days.

MENACING APPENDICITIS.
Adhesion of Appendix to Abdominal Wall with perforation and formation of Sinus.
Case No. 48, 1896

RECURRENT APPENDICITIS.

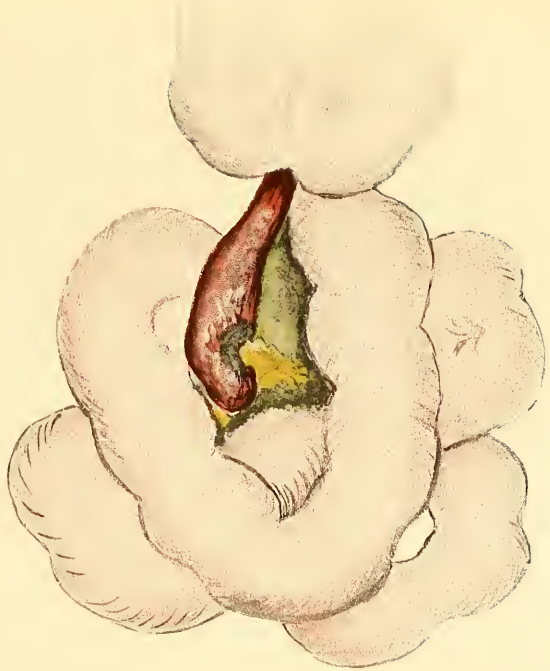
Partly occluded Appendix (sectional view)
Accumulation of pus within and small fecal calculus at entrance. Case No. 35. 1895.



MENACING APPENDICITIS.

Appendix entirely sloughed off. Good protective adhesions preventing general peritonitis.

Case No. 22, 1894.



MENACING PERFORATIVE APPENDICITIS.

Perforation and discharge into compartment of peritoneal cavity protected by adhesions.

Case No. 50, 1896.

Fatal Perforative Appendicitis with eight Calculi

Case No. 43, 1896.

Appendix with Calculus which has caused Perforation.

Case No. 37, 1895.

The abdomen was distended at the time of the operation. Death occurred twenty-three hours later from continuation and extension of the peritoneal inflammation.

Case 19. Was seen by me within thirty-six hours of the initial symptom. At that time there was no general peritonitis, but distinct dulness in the right inguinal region indicated local peritonitis and pus accumulation. The case was first seen in consultation late at night. Operation was advised, and I went early the next morning prepared to execute it. A friend of the family had in the mean time, and without my knowledge, summoned another expert consultant. His judgment was opposed to operation at that time. In accordance with this, the case went on four days more, when general septicæmia developed with violent chill, rigor, and temperature of 104°, pulse 120. In spite of hurried operation then resorted to, the patient succumbed to general septicæmia in just six days after the first symptoms appeared.

It has always been my firm opinion that had operation been performed, according to first arrangements, and capillary drainage established, recovery would have taken place.

Case 24. A woman of thirty-five years; had been ill seventeen days. When I first saw her in consultation, there had evidently been a secondary rupture, that is, the peri-appendicular pus accumulation which had been localized up to about the time I was summoned had escaped through rupture of adhesive bands, and had invaded the general peritoneal cavity. There was, at the time of the operation, tympanites, and on making incision through the abdominal wall extremely fetid pus escaped, and a sloughing appendix came into view, which was removed. In spite of irrigation and the adjustment of drainage, the peritoneal inflammation continued and ended fatally.

Case 32. A boy of five years was hurriedly brought to the hospital late one night with symptoms of collapse. He had been ill five days, and had been attended, nearly up to the time of his hurried transmission to the hospital, in a conservative expectant way. His removal to the hospital was through change in medical adviser, and falling into the hands of a wide-awake young physician, who recognized immediately the serious import of the case. Operation was made without delay by electric light which showed secondary rupture, pus well disseminated through the peritoneal cavity, a sloughing appendix, and a large calculus. In spite of the most thorough irrigation and the cleansing of individual loops of intestines, death occurred seventeen hours later.

I have thus portrayed at considerable length the incidents relating to the fatal cases, for it is from these that we learn lessons to guide us in the future. A glance over them shows that almost invariably the disease had progressed long enough to permit of the establishment of general peritonitis or general septicæmia before surgery was invoked. Generally speaking, if a death occur shortly following

a surgical operation, surgery is blamed for it. I cannot believe, however, in a single individual case described above that the operation hastened death a single hour. On the contrary, I believe that every individual case might have been saved had surgery been invoked sufficiently early. On glancing through them it will be seen that from five to seventeen days had elapsed before surgery was resorted to. In a rapidly fulminating case, by the fifth day the patient is beyond help, while in a slowly progressing case, or one accompanied by protective adhesions, the lapse of ten to twelve days may find the patient in collapse from secondary rupture or general septicæmia.

In contrast to the fatal results which I have described in the above cases, I will briefly narrate a recent case of a boy twelve years of age, in the family of one of my colleagues. His initial symptom of pain in the abdomen occurred at seven o'clock on Friday morning, and was deemed a transient attack of colic, until, not improving in the latter part of the afternoon, appendicitis was suspected. I saw him in consultation at eleven o'clock in the evening of the same day. At that time he was sleeping, and on waking tolerated deep pressure over the region of the appendix quite freely. I was unable at that time to make out any tumor. His temperature was 101° F. and pulse 120. At seven o'clock in the evening his temperature had been $102\frac{1}{2}$° F.

With his apparent freedom from pain and toleration of deep palpation, it was considered wise to wait until morning. A cold pack was adjusted about the abdomen, and belladonna administered internally. I hoped that it was a transitory attack from which he was already convalescing and that the next morning his temperature and pulse would be nearly normal. On the contrary, I found on visiting him the next forenoon that his temperature and pulse were respectively $100\frac{9}{10}$° and 114, not materially differing from the night before.

It was determined to wait no longer but to proceed with as little delay as possible to operation. The reasons for adopting this course were as follows: —

First. — If it were a case of merely transient catarrhal self-limiting appendicitis, it should at the expiration of twenty-four hours be on the mend. On the contrary, no remission of symptoms was manifest.

Second. — There occurred the night before, between seven and eleven in the evening, a remission of pain and sensitiveness on palpation, but without, it should be noticed, improvement of pulse and temperature. This suggested rupture of the appendix with escape of purulent débris into the general peritoneal cavity.

Third. — No tumor was discernible on deep palpation, which showed that nature had failed to localize and shut off from the general peritoneal cavity the region affected.

Within about thirty-six hours of the initial symptom this case was

operated upon, a perforated appendix containing a calculus removed, and a moderate amount of purulent matter washed out. Not a single untoward symptom followed the operation, and at the end of a week the little fellow had normal temperature and pulse, and wound very nearly healed.

It is my earnest hope that with a wider dissemination of rational views upon the pathology of appendicitis, and the undoubted beneficence of proper surgical treatment, that the fatal dillydallying treatment of the present day will be a thing of the past. It seems absolutely inhuman to permit so menacing a disease to go on day after day until a fatal issue is inevitable, when the early utilization of the surgical knowledge at our command is almost certain to cut short the disease and save the patient's life.

PELVIC SURGERY BY THE VAGINAL ROUTE.

No more startling departure in the field of surgery has occurred than the rapid substitution in the past year of the vaginal route for abdominal section, in the removal of small ovarian tumors, pus tubes, and hysterectomy. Though removal of the womb by vaginal operation has been a well-established procedure for a number of years, yet its performance has multiplied many fold as an incidental part of vaginal operation for the removal of pus tubes and small ovarian tumors. It is a marvel with what facility the pelvic viscera are reached and necessary operation performed by the way of the vaginal canal when one has once become habituated to that method of operating. To be sure, cases differ vastly in the facility with which operation may be thus performed. For example, a short capacious vagina makes the parts very accessible, while a long, narrow vaginal canal calls for all the manual dexterity available. A moderate sized, freely movable ovarian cyst, easily appreciable in the posterior cul de sac through vaginal examination, is readily removed through a transverse incision posterior to the cervix. Reduction of its volume through puncture and removal of its contents through an aspirator needle facilitates its delivery. Its pedicle is usually sufficiently long so that it can be easily ligated. Through the same opening the opposite ovary can usually be brought into view, examined, and the advisability of its removal adjudged.

With adherent ovarian tumors or pus tubes, which are almost invariably adherent, the procedure must be quite different, and it is here that incidental removal of the uterus becomes an accompanying, and in a measure a preliminary, step. It seems on first thought a radical and heroic step to take, that is, the removal of an approximately healthy and presumably inoffending womb, as an accompaniment to extirpation of diseased appendages, and I must declare that I entertained very deep prejudice against the routine adoption of such a step until actual experience convinced me of its justifiability.

The following are the principal reasons for its adoption : —

First. — In seeking to reach pus tubes and other adherent pelvic tumors the uterus is in the way : that is, it obtrudes itself as an insurmountable obstacle.

Second. — Experience shows that the sacrifice of the womb in the course of such vaginal operation does not enhance the danger.

Third. — That the combined removal of the womb and appendages by the vaginal route is accompanied by less danger, and usually far less threatening sequelæ during the convalescence, than the removal of the diseased appendages alone by the abdominal route.

Fourth. — Through the vaginal removal of the uterus as an accompaniment or preliminary of removal of pus tubes by the same route, most satisfactory and natural drainage is secured.

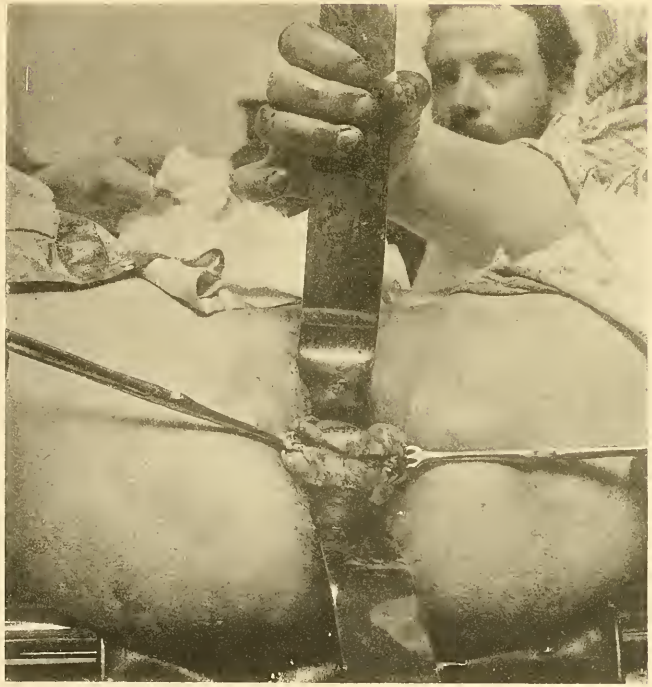
Fifth. — The desired end is reached with minimum of disturbance of the abdominal viscera, abdominal incision is avoided, with consequently no subsequent danger of ventral hernia.

Sixth. — Convalescence is usually rapid, often with no more discomfort than that following repair of the cervix, and the patient is able to be up and on her feet long before it is usually considered safe after an abdominal section.

It is obvious then that in the consideration of operation for the removal of pelvic tumors by the vaginal route vaginal hysterectomy constitutes an important step. In reality it is almost the operation itself in its entity, for with the way cleared through removal of the womb, there is usually but little remaining to be done ; for, other than in exceptional cases, adherent pus tubes and small ovarian tumors are easily separated from their attachments, brought into the field, the pedicle ligated, and removal effected. It is exceedingly rare that adhesions are so dense that a line of cleavage cannot be found and followed up with final separation of the mass from its attachments to the surrounding pelvic peritoneum. It has occurred but once in my experience that I have been unable easily and quickly to effect separation. This was an old case of years' standing, with a history of tubal disease and recurring pelvic abscess. There had evidently been exceedingly strong fusion between the abscess wall and the rectum or sigmoid flexure, with perforation and periodical evacuation that way. I was unable in this case to find a line of cleavage or satisfactorily enucleate the mass. Possibly cases of this description might be better handled through an abdominal incision, and yet I feel in doubt about it, for they constitute under any circumstances and any form of operation an exceedingly difficult complication to cope with.

The *method* of vaginal hysterectomy, either as a preliminary step or as a primary operation for the removal of the uterus, which is in itself the seat of disease, is an interesting topic for consideration.

The main question at issue is how to best secure the broad ligaments. These bear the blood vessels which supply the womb, and



AUTHOR'S METHOD FOR VAGINAL HYSTERECTOMY.

Protecting retractors in place.

Protecting and cat's paw retractors in place, and the womb undergoing splitting with the electro cautery.

are only four in number, the ovarian above near the region of the Fallopian tube, and the uterine below, very close to the utero-vaginal juncture. It would seem that such a well-defined and easily located blood supply might be controlled with but little difficulty. It is, however, over this point alone that opinion differs at the present time, the choice lying between successive ligations of the broad ligament upon either side, or possibly the ligation of each individual blood vessel as it is cut; and the use of pressure forceps designed to be left *in situ* for twenty-four or thirty-six hours. The latter method is Pean's, of Paris, and is warmly supported by him and his followers. Either method yields good results.

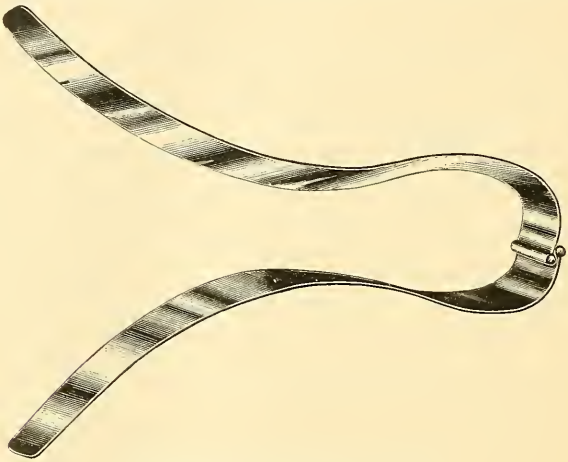
The so-called method by enucleation is hardly worthy of consideration since it differs in nowise from the ordinary steps of hysterectomy by ligation. There is no doubt that a healthy womb bearing healthy appendages may be stripped away from its attachments to the broad ligaments, and the blood vessels torn through without entailing the necessity of ligation. Removal of the healthy womb and appendages, however, is not under consideration and should occupy no place in surgical literature. In following either of the methods referred to above through a series of years, it has gradually occurred to me that some more expeditious and dexterous method might be devised for making vaginal hysterectomy. With that end in view, I have during the past two years made several modifications in method and instruments. It has been the custom, and even is at the present time, for surgeons of experience and acknowledged skill to spend from two to three hours in the performance of vaginal hysterectomy. Such a consumption of time and subjection of patient to such prolonged anæsthesia cannot, it seems to me, be other than prejudicial. Through the method which is herewith appended, it is possible to easily and readily complete the operation in from twenty minutes to half an hour. The details of the method are as follows: —

The cervix is grasped with strong tenaculum forceps and dragged down toward the vaginal orifice as far as its attachments will permit. An incision is carried around the cervix through the vaginal mucous membrane. The attachments are separated anteriorly and posteriorly until the peritoneal cavity is reached. The anterior and posterior walls of the womb are cleared of all attachments well to the broad ligaments on either side. The steps thus portrayed are common to all methods. From this point on divergence occurs.

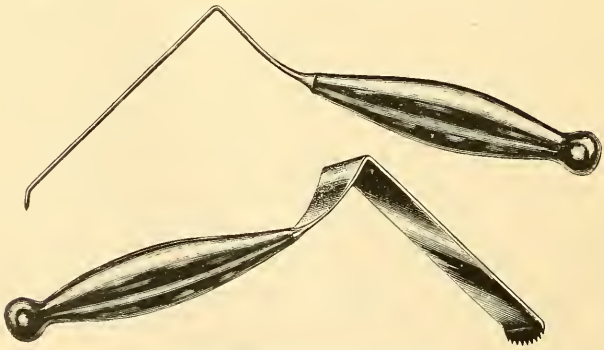
Protecting retractors designed for the purpose with special curve are passed through the vaginal wound anteriorly and posteriorly until their rounded innermost ends meet and lock over the fundus uteri. These spatulæ now in the hands of assistants act as most powerful retractors to draw the womb down toward the vaginal orifice, and also protect the bladder, the rectum, and loops of intestines, in the course of the next step, which is *longitudinal splitting of the womb*, preferably with the electro-cautery knife, although strong, long-handled scissors may be advantageously employed. During the

process of womb splitting, the procedure is greatly facilitated through the use of specially designed retractors which, from their peculiar construction and action, I have termed "cat's-paws."

With the completion of the longitudinal bisection of the uterus, the protecting retractors are removed, when it will be found that



PROTECTING RETRACTORS (ORIGINAL).



CAT'S-PAW RETRACTORS (ORIGINAL).

each uterine segment may be successively brought down and delivered at the vaginal orifice. The lower segment of the broad ligament bearing the uterine artery is immediately within the operator's grasp, and with the aid of an ordinary stout curved needle, a ligature of silk or strong catgut is easily thrown about it. It will be found that ample room is now afforded to slip the hand up along the vaginal canal into the pelvic cavity, and enucleate pus tubes, small ovarian

tumors, or whatever may exist, and bring them down well toward the vaginal orifice. The segment of the uterus and appendage undergoing manipulation is now well within the grasp, securely held with vulcellum forceps, with the principal source of hemorrhage, that is, the uterine artery secured. The remaining step is to quickly slip an écraseur over the mass, tighten the chain around its pedicle, the broad ligament, and sever it. Each side is treated successively in this way and the operation is practically done. No hemorrhage occurs from the ovarian artery when severed in this way. Two or three catgut sutures are inserted antero-posteriorly through the edges of the vaginal wound, including if possible the peritoneum. Laterally each angle of the wound is left open in which wicks of gauze are adjusted to drain away any serous oozing which may occur, and especially to preserve drainage in case there has been a suppurative condition of the appendages. The vaginal canal is packed with borated gauze which is changed on the second day, and the lateral drainage wicks are removed on the third. Thereafter the vagina is cleansed daily through introduction of a speculum and swabbing with peroxide of hydrogen solution. No fatality has yet occurred in my hands following this plan of operating.

THE SURGERY OF THE HAND.

Injuries and diseases of the hand constitute a department of surgery second to none in importance. The preservation of the hand in all its flexibility and strength means, to the laboring man, food and clothing for himself and family. Its loss may mean poverty and distress.

To those in affluent circumstances the preservation of the hand in all its symmetry and beauty is a boon beyond price.

In the treatment of such menacing septic conditions as phalangeal periostitis, thecitis, and palmar abscess the anatomical relations of the tendon sheaths and the palmar bursa are of the utmost importance. A knowledge of them may enable the surgeon to avert a threatening, disastrous, and destructive septic inflammation.

An ill-advised "incision to the bone" of a superficial septic cellulitis, originating from a punctured wound, may do more injury than if the original site of sepsis were left alone.

It may open up a path for extension of the septic inflammation to tendon sheath and periosteum, where otherwise it might not have reached. The most disastrous and mutilating results now and then follow what seem in the initiative to be but slight wounds or scratches. The loss of a single finger is a serious and pitiful mutilation, while the loss of the whole hand and maybe forearm, to say nothing of life itself, is a calamity.

The following case well illustrates the grave sequelæ liable to follow trivial hand injuries: —

A woman sixty-four years of age, while opening a can of ham, received a slight abrasion on the palmar surface of the left hand, near the base of the index finger. A week later the tissues in the vicinity of the wound began to look red and swollen. It was at this time opened, but in spite of this the inflammation extended both toward the end of the finger and up the palm of the hand, finally involving the wrist and forearm to the elbow. Sinus after sinus formed, with copious discharge of foul pus. Enormous thickening of the cellular tissue of the whole hand and forearm accompanied the septic process. The tissues appeared to be totally wanting in resistance to the progress of the destructive disease, except that it never extended above the elbow, nor appreciably involved the axillary glands. Faithful irrigation of the sinuses with peroxide of hydrogen, and daily soaking of the whole hand and arm in antiseptic solutions failed to check the progress of the trouble. January 31, 1896, after four months of patient effort to induce healthy reaction and repair, the contest was given up and the arm was amputated just above the elbow joint. The stump healed without delay. Bacteriological study of the pus showed that the primary infection was probably due to the invasion of pyogenic streptococci, and later there became associated with them staphylococci, diplococci and hosts of saprophytic bacteria of various forms.

The question always arises in such calamitous cases whether anything might have been done in the early stage to check the destructive process. In this case it would appear that no stone was left unturned from the time the physician took the case in charge to antagonize the progress of the inflammation. I am inclined to believe that in such cases the unfortunate sequelæ are due alone to lack of vital resistance on the part of the patient's tissues. The micro-organisms, once in the tissues, run riot and destroy everything with which they come in contact.

BILIARY CALCULI.

This distressing condition is one which is so amenable to modern surgery that I cannot speak in too enthusiastic manner regarding it. Ten cases will be found recorded in the table, with eight recoveries and two deaths. I think I can emphatically declare that in both cases where death occurred it was from too long delay in invoking surgical aid. Scarcely any operation is more satisfactory in its results than a cholecystotomy under favorable conditions, that is, where the abdominal wall is thin, the gall bladder enlarged and pendulous, with thickened walls, and containing the calculi wholly within itself, that is, no lodgment of the same in the cystic or common duct. On the contrary, the converse of these conditions renders the operation difficult beyond description. The ideal cholecystotomy is that where the conditions will permit of evacuation of the calculi, immediate

Septic Hand and Forearm, caused by a slight scratch received while opening a can of ham.

(Patient of Dr. H. F. Batchelder, Danvers, Mass.)

Remnant of Right Hand after crushing and burning in laundry mangle. Now a useful member. Owner performs all household work, and writes a legible hand.

THE HELIOTYPE PRINTING CO., BOSTON

closure of the wound in the gall bladder, and also complete closure of the external wound. To do this with safety to the patient, there must be positive evidence of patency of the cystic and common ducts. In the absence of such positive evidence, the fundus of the gall bladder must be sutured to the edges of the external wound, and permanent drainage established. It is sometimes impossible to accomplish this, owing to the diminutive size of the gall bladder and its location far up under the costal cartilages. Even under this adverse condition a drainage tube carried to the vicinity of the fundus with a peripheral packing of gauze readily takes care of bile which may escape, and brings it to the surface so that such a contingency by no means portends a fatal result.

The symptoms usually present in a gallstone case are pain and tenderness in the right hypochondrium, with or without history of gallstone colic (one of my cases which yielded 116 gallstones gave no history which would lead to suspicion of passage of calculi through the ducts), though the presence of such history is a valuable aid in reaching conclusions. Repeated transitory attacks of icterus, with clay-colored stools, also afford valuable aid in reaching a diagnosis, but such may never have been present. A bunch demonstrable by palpation in the right hypochondrium accompanying the above symptoms corroborates most positively a theory of gallstone disease. Such a bunch may exist independently, however, of the above symptoms and may be difficult to differentiate from a tumefied or dislocated right kidney, or intussusception of the ascending colon.

One case where I was inclined to make a diagnosis of gallstone disease, I found, on exploratory incision, an old intussusception, which ended in making intestinal anastomosis instead of cholecystotomy.

Impaction of a calculus in the cystic or common duct is an exceedingly unfortunate complication for both patient and surgeon. Long existence of such a complication in the cystic duct may continue without other symptoms than a dull, wearying, grinding pain, but may finally bring matters to a crisis through accumulation of pent-up mucus within the gall bladder (its natural secretion), until it attains a size which makes it easily apparent by palpation, and sets up menacing symptoms through its gradually increasing distention. It must be assumed that icterus never occurs under this condition, since, if the common duct be still free, the bile continues to flow without obstruction into the intestinal tract.

I have in one case found a calculus so firmly imbedded in the cystic duct that I was obliged to slit the duct open to remove it. This was one of a total of fifty-seven sharp, angular faceted calculi which were taken away. The cut in the cystic duct was immediately sutured, and no trouble came from it.

When lodgment of a calculus in the common duct exists, the extreme jaundice which results is usually, with the existence of a gallstone history, a sufficiently positive index of the condition. This

constitutes a more difficult complication to manage than the preceding, since the common duct is buried beneath a duplicature of the peritoneum, which must be cut through before it can be reached. It is quite possible to do this, however, within the bounds of safety, though it requires a long incision through the abdominal parietes parallel with the costal cartilages. I have never met this complication in the course of any of my gallstone operations. There was one case which came into my hands for a few days, presenting unmistakable symptoms of common duct obstruction. She refused operation, however, and I am in ignorance of the ultimate sequel.

The following brief histories of selected cases are presented as types of the disease : —

A TYPICAL CASE WITH CHARACTERISTIC SYMPTOMS.

Miss O., thirty-eight years of age, suffered eleven years ago with pain in the epigastrium and right hypochondrium, nausea and vomiting. In the intervening time she had suffered repeated attacks, sometimes following each other with a remission of only twenty-four or thirty-six hours. Transient icterus accompanied these attacks, especially if they were severe or prolonged. Examination of her fæces repeatedly disclosed the presence of gallstones. External examination disclosed nothing, except tenderness on deep palpation over the right hypochondrium. There was absolute absence of demonstrable symptoms of distended gall bladder.

Pathological condition present : —

The symptoms indicated the presence of many small gallstones which passed with considerable frequency and freedom through the cystic and common ducts. The irritation of their passage was sufficient to produce pain and reflex gastric symptoms, but at no time were they productive of complete stenosis sufficient to stop the flow of bile. The transitory icterus indicated a hindrance to the biliary flow but not total obstruction. The presence of the gallstones in the fæces was *prima facie* evidence of the disease.

Operation : —

A vertical incision was made just below the costal cartilage of the eighth rib, of sufficient length to admit the forefinger for exploration. Reaching deeply into the abdomen through this opening, the gall bladder could be felt in its normal location well up beneath the liver, approximately normal in size, but as the finger pressed upon it, it was easily distinguishable as filled with gallstones, which rubbed and grated upon each other. The abdominal walls in this case were exceedingly thick, bearing a layer of about three inches of adipose. The incision was lengthened by carrying it downward and posteriorly parallel with the costal margin. With great difficulty and the use of large, broad retractors the edges of the wound and the abdominal viscera were held apart sufficiently to reach the sequestered gall bladder. Pads of gauze were packed about it to further aid in hold-

ing away and protecting adjacent loops of intestines, its fundus seized with a pair of bullet forceps, and an opening quickly made through its walls with a pair of long-handled scissors. Seventy-two gallstones, none exceeding a hazelnut in size, and some as small as an onion seed, were removed. They were light yellow in color and all with sharp angles and facets. The appearance of fresh bile discharging from the wound in the gall bladder was conclusive evidence of the patency of the cystic duct, and warranted an effort to make immediate closure of the gall bladder.

The wound in the fundus was repaired, under the adverse circumstances of its inaccessibility, with fine silk. Fearing that there might be leakage of bile, a gauze wick was adjusted leading from the fundus through the external wound. Subsequent events showed the wisdom of this precaution, for in the two or three succeeding days the gauze wick brought to the surface a moderate amount of bile. There was, however, prompt cessation of biliary discharge and rapid healing of the wound with full recovery.

The following brief reference to another case belonging in the same class is worthy of note, in that practically the same symptoms presented, that is, repeated attacks of pain in the right hypochondrium with reflex gastric symptoms, marked jaundice, more so than in the preceding case, and clay-colored stools, with high-colored urine. There was here, as in the preceding case, total absence of evidence of enlargement of the gall bladder, that is, no tumefaction could be felt in the right hypochondrium. I felt on first making survey of the case that we had gallstones to deal with, which was substantiated by inspection of the next fæcal discharge, for in it a gallstone larger than a marrowfat pea was found. It was somewhat angular in shape, and from its size and irregularity would indicate that in its passage through the common duct it would be ample to produce all the pain and biliary stenosis which she had suffered.

Operation was performed, almost identical in detail with the preceding case, and nine gallstones removed.

The patient was sixty-eight years of age, with lowered vitality, and her convalescence was long and accompanied with many threatening complications, but nevertheless she made excellent recovery and is in the enjoyment of good health to-day.

AN ATYPICAL CASE WITH ABSENCE OF ALL SYMPTOMS USUALLY LOOKED FOR IN GALLSTONE DISEASE.

Miss H., aged thirty-six, while in apparently good health, discovered three years ago a bunch in the right hypochondrium just below the costal margin. One year later she began to experience discomfort in the region of the tumor, with slight and transitory disturbance of digestion. The pain finally became a dull constant ache. She was never jaundiced, never had symptoms indicative of passage of gallstone, never clay-colored stools nor bile pigmented urine.

In the hands of another surgeon her condition had been diagnosed floating kidney, and an operation performed four months before designed to cure that condition.

On examination the bunch which she had discovered three years before was well manifest, presenting in the right hypochondrium well below the costal margin. A vertical cicatrix existed in the right lumbar region, marking the site of her operation, which was performed on the supposition of floating kidney. I felt in grave doubt as to the character of the bunch, but it seemed a warrantable conclusion that if through actual exploration a dislocated kidney had been found and an effort made to restore it, that diagnosis must be accepted. Her suffering, however, had not been alleviated, and with the persistence of the bunch I counseled another operation, to which she willingly consented. In accord with the diagnosis of floating kidney, an incision was made in the right lumbar region, parallel with the twelfth rib and crossing obliquely the original scar. On penetrating the deeper layers of the parietes, the kidney was found in its normal position and had evidently never been out of place. The lower border of the right lobe of the liver was firmly adherent to the old cicatrix, and stitch holes were plainly visible where it had been sutured to the surrounding fascia in the previous operation.

The finger was carried deeply into the wound, which now communicated with the peritoneal cavity, and the bunch was easily reached through bi-manual manipulation, and the true pathological condition readily became apparent. The tumor was the gall bladder enormously distended with gallstones.

The lumbar wound was quickly closed, an incision made in the right hypochondrium directly over the site of the tumor, the gall bladder exposed, incised, and 116 stones removed. Four of these were large calculi equaling a filbert in size. The others were much smaller, and it would seem some might easily have passed through the cystic and common ducts had not one of the larger stones acted like a ball valve in the neck of the gall bladder, so large that it could not pass itself, and effectually checked the entrance to the cystic duct of any of the smaller ones. Very excellent recovery followed.

Another and very similar case was that of a woman of forty-six years who had been in good health up to four weeks prior to my survey of her case. In the intervening period she had suffered nausea, vomiting, diarrhœa, abdominal pain, and feeling of distention. It was looked upon as a severe case of dyspeptic gastralgia until the discovery of a bunch in the right hypochondrium. Careful physical examination showed a movable, well-rounded tumor in the right hypochondrium presenting distinctly beneath the costal cartilages. No history of jaundice could be elicited.

Exploratory incision was advised and accepted. The gall bladder was found largely distended with accumulated mucus and contain-

ing seven large gallstones, closely resembling in color and shape chocolate creams.

Excellent and permanent recovery followed.

Still another phase of gallstone disease is that presented in old long-enduring cases where the continued irritation of the gallstones has set up suppurative inflammation with accumulation of pus. A number of cases of this kind have come under my observation.

Mrs. W., aged twenty-six, of slight physique, had been in her usual health up to two months prior to my relation with her case. During that period she had suffered pain and discomfort in the right hypochondrium, gastric disturbances, with later the development of a well-marked tumor in the right hypochondrium and elevation of temperature and pulse. Though the symptoms were obscure and failed to point conclusively to gallstone disease, yet the threatening condition with presence of distinct tumor led me unreservedly to advise exploratory incision. At the solicitation of the family additional expert counsel was called, which resulted in a disagreement. The advice originally given, however, prevailed, and exploratory incision revealed a gall bladder greatly distended with pus, mucus, and eleven gallstones differing in physical characteristics from anything of the kind I have seen before or since. They were very uniform in size, about as large as marrowfat peas, free from angles or facets, but presented a general appearance singularly like a raspberry or mulberry. Drainage was established, and for a number of days quite a free flow of bile continued through the external wound. Excellent healing finally took place, with good recovery.

Still another case belonging to this category has recently come under my care with such an interesting history that I herewith briefly append it.

Mrs. B., aged eighty, a well-preserved woman of strong constitution, had five years ago what was then termed malarial fever. A hard bunch then appeared in her right hypochondrium, which was lanced, followed by a discharge, the character of which I could not learn from the patient's incoherent statements. A sinus has persisted ever since from which a moderate amount of purulent matter constantly exudes.

Exploratory incision showed a sinus leading directly to the gall bladder, in which were incarcerated several large, almost black, friable calculi. These were removed, followed by great relief, though a sinus still persists from which a slight amount of bile flows daily.

MALIGNANT DISEASE.

The treatment of cancer, either medical or surgical, constitutes one of the most discouraging experiences falling to the lot of a physician. With all our boasted progress in medical science, we must admit that little or nothing has been developed to broaden our

knowledge of the true nature of malignant disease or help us in its treatment, either in the way of prophylaxis or to check its progress after it has once become established. We have the same old category of escharotics in the shape of various caustic preparations, and extirpation with the knife.

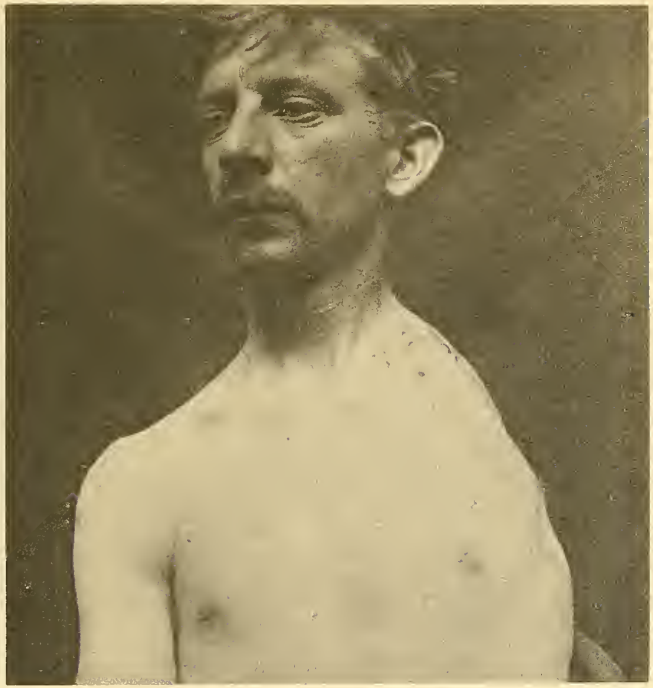
There are some forms of malignant disease, notably epithelioma, such as appears upon the face, tongue, external genitals, and cervix uteri, which are undoubtedly purely local in their origin, and once thoroughly removed, whether it be with caustic, chemicals, or the knife, never reappear. Other forms such as glandular carcinoma and connective tissue sarcoma, appear at times to be dependent on something more than purely local activity, for even with full and radical removal, similar disease breaks out elsewhere with final fatality. This all seems indicative of subtle differences in individual cases which grossly seem to resemble each other.

A recent line of experiments now being conducted by Dr. William B. Coley, of New York, seems to substantiate this theory. I refer here to the treatment of malignant disease with erysipelatous toxines. It seems to the writer that this marks a distinct step in advance, and may be the index of future progress which shall finally result in a successful method of treatment of all forms of cancer. Little by little the method has developed from a beginning with inoculation with living erysipelatous streptococci, then attenuated cultures of the same, until now the toxic products only are used combined with the toxic products of the bacillus prodigiosus. The use of this preparation is in no wise dangerous to life (which cannot be said of the use of the living erysipelatous virus). Daily injections of the filtered or unfiltered toxine are made into the malignant growth or in its vicinity. Several authentic cures have been reported, especially of sarcoma, as a result of this method. I am able to report one case of sarcoma of the parotid which seems to be a cure. I first made an operation upon the case for removal of the growth. Recurrence took place within a year. It then seemed unwise to again resort to operation, and accordingly I resorted to erysipelatous toxine injections, which were continued over several months with the final result that the tumor shrank away materially and seemed to become an inert non-offending node. Further injections failed to entirely dissipate it; consequently the remaining portions of the growth were dissected out, followed by excellent healing. Eighteen months have now elapsed since the beginning of the toxine treatment, and the parts are in excellent condition without the slightest sign of recurrence.

I believe this form of treatment is of little or no avail in the treatment of carcinoma, at least my experience with it in a number of cases of this description has resulted in failure.

Two other cases of sarcoma now under treatment, both of the abdominal viscera, show hopeful symptoms, and I am sanguine that cure will result.

SARCOMA OF SHOULDER



AMPUTATION OF WHOLE UPPER EXTREMITY

One case of sarcoma of the head of the humerus is worthy of special note where amputation of the whole upper extremity was made.

Most excellent recovery from the operation occurred, but recurrence of the disease took place within six months with final death. I have always felt that this was a case eminently favorable for the toxine treatment, but it occurred in my practice before that method had been developed, or at least while it was in the early experimental stage.

OSTEO-MYELITIS.

This disease of bone is of such frequent occurrence, and is so often confounded with tubercular disease, that the subject seems worthy of more than passing notice. It is an acute destructive inflammation taking its origin in the bone marrow.

It is a disease immediately dangerous to life, acutely rapid in its development, and more likely to appear in childhood and youth than in adult life.

Its favorite location is the medullary tissue in the lower end of the femur or the head of the tibia, although it may occur in other localities. It occurs more frequently than otherwise following some great physical exhaustion, or after getting thoroughly chilled, as sometimes happens to boys in "going in swimming," or in lying on the damp ground while greatly overheated and exhausted from physical exertion. Pain is felt at the focus of inflammatory invasion, and there is elevation of temperature and pulse.

In the early stage it is often mistaken for rheumatism. The pain rapidly intensifies; the tongue becomes heavily coated; there may be delirium and death. In the past, the disease when presenting this train of symptoms has been known as bone typhoid.

The intense, agonizing pain is due to the pent-up products of septic inflammation within the medullary cavity of the bone, and such pain continues until the bone is penetrated artificially, or by the destructive progress of the disease with evacuation of the accumulated purulent matter.

It is now very well established that the disease is caused by pyogenic micro-organisms, usually staphylococci, which gain a lodgment in the bone marrow, where they find all conditions favorable for their multiplication and no resistance to their encroachment upon the surrounding structures. Besides occurring after extreme fatigue or exposure, it sometimes occurs as a sequel of the infectious diseases, such as measles, scarlet fever, diphtheria, and typhoid. It has also been known to develop as a sequel of so simple a matter as a boil on some distant portion of the body. The acute stage may, through spontaneous relief occurring by the formation of a sinus with opportunity for discharge, drift into a chronic state, with a suppurating

bone cavity, portions of the shaft of the bone within it gradually disintegrating, and finally making their exit with a great sub-pereosteal thickening and formation of a dense involucrum. Such a chronic condition may drift on for years into adult life. There sometimes occurs apparently complete recovery from the acute attack in youth, with recurrence of the disease in the same focus a number of years afterward.

The following are typical examples of the disease: —

Mr. A., a baker by trade, after a long and exhausting tramp in a procession, was seized with pain which he located just below the knee joint. It was deemed at first rheumatism. The pain rapidly intensified until it became agonizing and unbearable in the extreme. Extreme elevation of temperature (104° F.) was reached in a few days, with pulse 120.

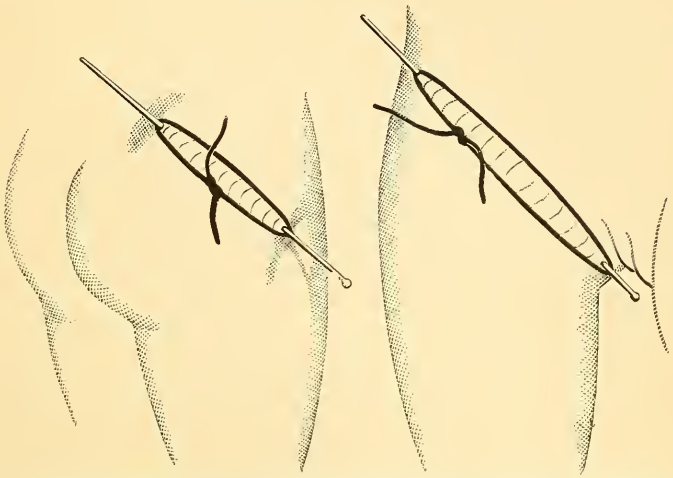
There were sordes upon the lips and tongue. The patient became delirious. A pyæmic abscess of the lung developed, with death at the expiration of a week. This is a typical case of acute fatal osteomyelitis.

In this case, undoubtedly, early recognition of the true pathological condition, and unhesitating surgical treatment in the shape of incision over the head of the tibia and free chiseling away of the bone until the medullary cavity was freely opened, would have saved the patient's life.

Mr. L., aged thirty, when a youth fourteen years old, in an outburst of juvenile foolhardiness and bravado, ran barefooted through the snow for a considerable distance. This was followed by severe and increasing pain in the region of the knee joint, with fever, and finally relief of symptoms through spontaneous formation of a sinus in the lower femoral region, and discharge of pus. He gradually improved, went on crutches awhile, with final healing, and apparently a sound limb. Sixteen years after, and fifteen months before he came under my observation, after a frolicsome and exhausting carouse extending far into the night before the Fourth of July, pain appeared about the knee previously affected, which followed about the same course as before, except that in the intervening months the inflammation had invaded the tissues more and more widely with no evidence of repair. Examination of the limb showed enormous fusiform swelling of all the soft tissues above, about, and below the knee. The soft parts were indurated and penetrated by five sinuses, making their exit at various points in the circumference of the limb in the vicinity of the femoral epiphysis. The diagnosis was made of chronic recurring osteo-myelitis dating from the acute attack of sixteen years before, again lighted up from the exhaustion incident to the Fourth of July revel.

The destructive inflammation had evidently reached and involved the knee joint and a considerable portion of the osseous and soft tissues above and below. Amputation was advised and accepted. The leg was first cut off at about the middle of the femur. On

finding that the medulla had been destroyed all the way up to the head of the femur, hip joint disarticulation was made by a slight modification of the Wyeth method.



AUTHOR'S MODIFICATION OF WYETH'S METHOD OF HIP JOINT AMPUTATION.

A needle was inserted anteriorly passing beneath the femoral vessels (see cut) and an elastic ligature woven about its protruding ends and tied. Another needle was similarly placed posteriorly passing beneath the gluteal vessels. A rubber ligature was also woven about this. Thus arranged, all vessels from which hemorrhage could occur during the operation were under control and without constricting the whole circumference of the limb. The disarticulation was then proceeded with in a leisurely manner by the oval method, with no anxious thought for the blood vessels. After separation was effected the arteries were sought for and found securely compressed between the needles and ligatures. It was most easy to grasp them with pressure forceps and ligate. The handling of the flaps was greatly facilitated through the elastic ligature not encircling the entire circumference. Disarticulation of the head of the femur was also made much easier, since the tissues were not made to hug the bone so closely as when the whole circumference is constricted.

No appreciable shock followed the operation and excellent healing rapidly followed.